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| **MANAGEMENT PROFILE:** | **LOUIS L. MACE** |
| **CURRENTR POSITION;** | **PAST PRESIDENT MACE ASSOCIATED CONTRACTORS & ENGINEERS, Inc. PAST PRESIDENT S.J. GROVES & SONS** |
| **EDUCATION:** | **B.S.C.E OREGON STATE UNIVERSITY M.B.A GEORGE WASHINGTON** |
| **DATE OF BIRTH:** | **MARCH 5, 1935** |

**EXPERIENCE:**

After graduation from college, Mr. Mace worked for Vinnell Corporation and Dravo Corporation. During this period of time Mace spent most of his career working on Hydro projects on the Columbia and Snake rivers. In 1968, Dravo sent Mace to Alaska where he was promoted to Division Manager. There, he was responsible for several jobs. He bid and was successful in building the Chitna bridge and the new airport at Ketchikan Alaska. In 1970, Dravo promoted Mace to Regional Manager and moved him to Seattle, Washington where he was responsible for Dravo's Northern operations, which included a variety of projects.

In 1972, Mace started his own company which specialized mainly in small hydro projects in the Northwest. In 1973, S.J. Groves purchased M.A.C.E. Inc, and he stayed on with Groves and managed their Western operations.

S.J. Groves established an office in Bellevue, Washington. Working from this office Mace handled the responsibilities of Area Manager, Assistant Vice President, Manager of the Engineered Construction Division and eventually was named President of S.J. Groves Construction in 1983. There were many notable projects the Bellevue group bid and managed. Among those was the $55 million Chief Joseph Powerhouse, the $ 80 million Rock Island Powerhouse, the $13 million Kaneohe Hawaii flood control dam, three Powerhouse and Dam projects in Southeastern Alaska and Kodiak Island totaling $200 million. Groves also constructed the first segmental bridge in the West, the $65 million I-205 bridge across the Columbia River. One of the most challenging projects was the widening of the Banfield Freeway in Portland, Oregon. The most notable project was the construction of the $310 million Second Powerhouse at Bonneville Dam. In total under the guidance of Mace, Groves performed $1.5 billion in Contracts in the Northwest from 1974 to 1982.

As President of S.J. Groves Construction he assumed the responsibility of 60 percent of S.J. Groves & Sons Companies business. Two years late he was named Executive Vice President and Chief Operating Officer of S.J. Groves & Sons, and took on the responsibility of Paul Laurence Construction, Jasper Construction and Malvon Construction and the Groves operations in South America, Canada and Saudi Arabia. Jasper and Malvon were primarily in the non-union heavy highway business and Paul Laurence was a commercial and industrial contractor working in the water and waste treatment industry. The broad diversity of projects the Groves organization performed expanded Lou's construction knowledge and his ability to deal with a myriad of construction related problems.
On March 1, 1986, after 14 years with the Groves Company, Mr. Mace resigned as President of S.J. Groves Construction and started up his old company M.A.C.E. Inc. On July 17, 1986 he signed a contract to build the $12 million Terminous Powerhouse and tunnel near Visalia, California. This project required 28 months to construct and was done on time and under budget. At the same time he was active in the company Heither/Mace, a firm specializing in contracts for the F.A.A, and the U.S. Airforce.

**OTHER RESPONSIBILITIES:**

During the last ten years, Lou has had time to work with the American Arbitration Association for which he has been a member panelist on numerous hearings and has attended several AAA workshops. Also during this period, he has served on a number of Disputes Review Boards as a panel member and as the Chairman. He is a member of the Disputes review Board Foundation and has attended their training seminars for Panelists and Chairpersons. Board participation has been for the States of Washington, Oregon, California, Nevada, New Mexico, Utah and Ohio. One of these Boards was for the University of Washington and one for the California Private Transportation Company. This was a design build project for the construction of the $200 million toll road project in Orange County, a joint Venture of Peter Kiewit and Granite construction. In 1998 Lou was asked to serve on the Board of Senior Consultants for the San Diego County Water Authority for the Construction of the Olivenhain Dam, a project scheduled to complete in 2003. During 2002 Lou has assisted the States of Wisconsin, Utah, Missouri, and Washington analyzing the constructability of major construction projects ranging from $500 Million to $1.5 Billion

**ORANIZATIONS:**

Lou is a Registered Professional Engineer in the State of Oregon (5395), Idaho (2023). He is a member of the National Society of Professional Engineers, a member of the U.S. Committee of Large Dams, a member of the Moles, Member of the Beavers, and listed in the Who's Who in Engineering in America.

EXPERIENCE:

The following is a list of major construction projects Mace has been associated with and directly responsible. They are divided into types of work for your perusal. The list is not complete and is only a sample of the types of work that were his responsibilities.

A. HYDRO ELECTRIC PROJECTS:

1. Chief Joseph Powerhouse — $42 Million
   Increased existing plant by twelve units

2. Ice Harbor Powerhouse — $ 10 Million
   Increased existing plant by three units

3. Rock Island Powerhouse — $ 82 Million
   Added first horizontal bulb units 8 each

4. Bonneville Dam & Powerhouse — $ 260 Million
   Added third powerhouse to existing dam

5. Idaho falls Powerhouses — $ 25 Million
   Constructed three bulb unit powerhouses

6. Green lake Hydro Project — $ 36 Million
   Constructed a double curvature arch dam
   W/ tunnel and powerhouse in Sitka Alaska

7. Blue Lake Hydro Project — $ 42 Million
   Constructed a double curvature arch dam
   W/ tunnel and powerhouse in Ketchikan Alaska

8. Terror Lake Hydro Project — $ 85 Million
   Constructed hydro project with 30000 lf tunnel
   And powerhouse in Kodiak Alaska

9. Terminous Hydro Project
   Constructed 18 Megawatt powerhouse w/ 3000 lf
   Tunnel

B. TUNNELS:

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|---|---|
| 1. Mt. St. Helens Lake Tap<br>10 ft. diameter x 9000lf bored tunnel<br>to drain spirit Lake | $ 12 Million |
| 2. Terror Lake Hydro Project<br>10 ft x 30000 lf bored tunnel to transport<br>water to powerhouse, Kodiak, Alaska | $ 85 Million |
| 3. Terminous Powerhouse<br>12 ft. x 3000 lf tunnel conventional drill<br>& shoot. Steel Penstock lined | $ 12 Million |
| 4. Greenlake Powerhouse<br>10 ft concrete lined tunnel x 2,500 lf<br>conventional drill & shoot Sitka, Alaska | $ 36 Million |
| 5. Blue Lake Powerhouse<br>10 ft concrete lined tunnel x 2,500 lf<br>conventional drill & shoot Ketchikan, Alaska | $ 42 Million |

C. WATER AND WASTE TREATMENT PROJECTS:

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|---|---|
| 1. Rochester Minnesota WWTP | $ 47 Million |
| 2. Akron Ohio WWTP | $ 12 Million |
| 3. Montecello Minnesota WWTP | $ 14 Million |
| 4. Cape May New Jersey WWTP | $ 22 Million |
| 5. Richmond Virginia WWTP | $ 25 Million |
| 6. Redmond Washington WWTP | $ 21 Million |
| 7. Monterey California WWTP | $ 42 Million |
| 8. Cambdon New Jersey WWTP | $ 72 Million |
| 9. St Paul Minnesota WWTP | $ 83 Million |

C. INFRASTRUCTURE PROJECTS:

1. Atlanta Georgia — $ 410 Million
   Jasper Construction bid and completed 17 Projects in Atlanta. These projects included Building new freeways, conventional and Segmental bridges, widening existing Freeways and bridges.

2. Portland Oregon, Banfield Freeway — $ 106 Million
   S. J. Groves Construction bid and completed 3 projects which included light rail transit and widening the existing freeway

3. San Diego California — $ 210 Million
   S. J. Groves Construction maintained and Office in San Diego and completed 7 projects Adding new and widening existing freeways

4. Pittsburgh Pennsylvania — $ 158 Million
   S. J. Groves Construction opened and office In Pittsburgh and bid and completed 16 projects In the area. Included in this was the Pittsburgh Airport where we moved 7 million cy of earth.

E. CABLESTAY AND SEGMENTAL BRIDGES:

1. I-205 Bridge Oregon State DOT — $ 68 Million

2. Richmond Bridge, State of Virginia DOT — $ 49 Million

3. Wierton Bridge, State of West Virginia DOT — $ 32 Million

4. Jamestown Bridge, State of South Carolina DOT — $ 62 Million

F. HIGHWAY CONSTRUCTION:

S. J. Groves was, as you are probably aware, the largest builder of the interstate freeway system in the United States. I will not take the time to list these projects, as they are to numerous. It is of interest that Groves with Mace as president had offices in seven (7) different states and two (2) foreign countries dedicated to highway construction, along with other major construction projects.

## G. OTHER NOTABLE PROJECTS:

1. Lock and Dam 26 Phase 1 & 2 — **$ 235 Million**
   Constructed on the Mississippi River for The Corps of Engineers, this major Lock & Dam required 6 years to complete

2. Interstate 80 Highway & Dike — **$ 80 Million**
   Constructed for the State of Utah Department of Transportation. This project is notable in that 8 million CY of borrow was transported by conveyor belt.

3. Bonneville Dam Excavation — **$ 32 Million**
   This was a 15 million CY excavation project that relocate the Columbia River, to allow construction of the second Powerhouse at Bonneville Dam, a project that Groves also constructed.

**H. Disputes Review Board Participation:**

The following is a summary of my DRB participation

| | OWNER | No. Boards | Chaired | Disputes heard |
|---|---|---|---|---|
| 1. | California DOT | 18 | 5 | 8 |
| 2. | Washington DOT | 8 | 1 | 2 |
| 3. | Oregon DOT | 1 | 0 | 1 |
| 4. | New Mexico DOT (One design Construct) | 2 | 2 | 0 |
| 5. | Ohio DOT | 1 | 0 | 0 |
| 6. | Southern Nevada Irrigation | 1 | 0 | 2 |
| 7. | Fresno Clovis Reg. Water Reclamation | 1 | 1 | 0 |
| 8. | Federal Highway | 1 | 0 | 1 |
| 9. | Utah DOT (One Design Construct) | 2 | 2 | 0 |
| 10. | California Private Transportation | 1 | 0 | 1 |